



Community Science

Urban Wildlife

Lesson 8: Urban Wildlife Walk

Duration: 60+ minutes **Location:** Outdoor

Overview

In this lesson students will conduct an urban wildlife field study in their schoolyard/community looking for and recording the local animal species and discuss variation and niches of species observed.

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Learning objectives

By the end of the session, students will be able to:

- Explain to the class an observed urban wildlife species niche role,
- Highlight one or more environmental conditions that threaten urban wildlife, and
- Execute data collection in a local habitat and analyse the data as a group.

Curriculum links

Grade: 9

Science, Biological Diversity

- Investigate and interpret diversity among species and within species, and describe how diversity contributes to species survival.
 - Observe variation in living things and describe examples of variation among species within species.
 - Identify examples of niches, and describe the role of variation in enabling closely related living things to survive in the same ecosystem.
- Identify the role of variation in species survival under changing environmental conditions

Equipment required

- Tablets/iPads
- Observation sheet or nature journal
- Writing utensil
- Clipboard (optional)
- Binoculars (optional)
- Appropriate outdoor clothing



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- ID guidebook or pamphlet

Additional information

Students will need to know how to use a guidebook (if using) and have a basic knowledge of how to use SEEK by iNaturalist app and binoculars (if using). A basic understanding of what variation within a species is, climate change and hypotheses is required as well.



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Lesson plan

Time	Activity	Equipment Needed
5 minutes	<p>Identify the area that you will be taking students for the field study. For instance, this can be a stationary observation in the schoolyard or a traveling walk through the community.</p> <p>To ensure that student see animals, you have the option of placing laminated wildlife images in your study area for students to observe (from 5+m away), identify and record.</p> <p>Prior to starting your walk, have students great a hypothesis based on their personal experience in their schoolyard/community. The hypothesis should be about how many wild species they believe live in their local community. Have students write down their personal hypothesis to revisit after the field study.</p> <p>Introduce that the class will be conducting primary research to either prove or disprove their hypothesis. Frame the day as a field study where they will be attempting to identify/see as many animals as possible. As they observe wildlife, ensure participants make notes on any physical variation (size, colour, morphology, etc.) or behavioural variation (eating, location found, etc.) they notice between animals of the same species.</p> <p>It is important to note that urban wildlife do not include domestic animals and for this specific study will not include wild urban plant life, which can also be classified as urban wildlife.</p>	<ul style="list-style-type: none">• Paper or white board• Writing utensil• Laminated wildlife images• Clothespins
10 minutes	<p>Create smaller groups of 2-5 students. Within each group, designate and describe the following roles.</p> <ul style="list-style-type: none">• Observer: will be using the binoculars (optional) and/or their naked eye to look for local species.	<ul style="list-style-type: none">• Tablets/iPads• Observation sheet or nature journal



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	<ul style="list-style-type: none">• Recorder: will be using the observation sheet or nature journal, clipboard (optional), writing utensil and be drawing or writing down the birds their group observes.• Identifier: will be using the ID guide and/or tablet/iPad with Merlin Bird ID to help the group identify any species observed. <p>Students can periodically (every 10 minutes for instance) switch roles so everyone has an opportunity to experience each role and equipment.</p> <p>There can be two or more students in each role, depending on group size.</p> <p>Hand out the following equipment:</p> <ul style="list-style-type: none">• Binoculars (optional)• Writing utensils• Observation sheets or nature journals• ID guides or pamphlets• Tablets/iPads <p>Before leaving, have the group review field study behaviour best practices. For example,</p> <ul style="list-style-type: none">• move slowly,• move as a group,• do not make loud sounds, and• create a 'stop, look and listen' hand signal.	<ul style="list-style-type: none">• Writing utensil• Clipboard (optional)• Binoculars (optional)• Appropriate outdoor clothing• ID guide or pamphlet• Laminated wildlife images• Clothespins
15+ minutes	<p>Starting the field study.</p> <p>If you have selected a travelling field study, then ensure that you have one adult in the front and back. Ideally you will have one adult per small group to assist with observation, identification and recording.</p>	<ul style="list-style-type: none">• Tablets/iPads• Observation sheet or nature journal• Writing utensil



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	<p>If you have selected a stationary field study, then ensure that individuals or groups are sitting together but spaced throughout the study area to reduce chatter and increase wildlife observation. Travelling between stationary groups and providing prompting questions and tips is important to keep group focus.</p>	<ul style="list-style-type: none">• Clipboard (optional)• Binoculars (optional)• Appropriate outdoor clothing• ID guide or pamphlet• Laminated wildlife images• Clothespins
5 minutes	<p>During the field study, have students individually, in their groups, or as a class, identify threats to animal survival in their community (<i>climate change, habitat loss, traffic, food scarcity, predation by domestic animals, etc.</i>). Write ideas down in their observation sheets or nature journals. Revisit this brainstorm list after the field study.</p> <p>This mini-activity can be done as a break activity or facilitated as an on-going 'scavenger hunt' during the field study.</p>	<ul style="list-style-type: none">• Observation sheet or nature journal• Writing utensil
10 minutes	<p>Review sightings together as a big group. Curate a class list of animals seen (make sure they have been seen by at least two individuals and each agrees with the identification).</p> <p>If you group did not see any animals, or saw very few, then include the laminated wildlife images in your class list. However, do not enter the laminated wildlife images onto iNaturalist as these were not real life sightings.</p>	<ul style="list-style-type: none">• Tablet/iPad• Smartboard• Computer



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	After curating your list, log onto iNaturalist on a tablet/iPad (if outside, Wi-Fi permitting) or in the classroom (on the smartboard) and submit your wildlife sightings together as a group. You will need to log each animal individually.	
20 minutes	<p>In the classroom or outside, revisit the hypotheses made. Using the curated list of species seen, either prove or disprove their hypotheses.</p> <p>Some suggested follow-up questions are below.</p> <ul style="list-style-type: none">• We didn't see as many animals as we hypothesized, why do you think that is?<ul style="list-style-type: none">◦ How could we invite more animals to our schoolyard/community?• We saw more animals than we hypothesized, why do you think that is?<ul style="list-style-type: none">◦ Are there specific characteristics that help them live in this ecosystem? <p>Have students revisit the list of threats and obstacles they wrote down during the field study (<i>outdoor cats, no food, no shelter, not enough trees/bushes, cars, the heat/cold, climate change, etc.</i>) and create a group list on the board.</p> <p>Have students in their observation groups pick one species from the observation class list (groups should not repeat same species). In their groups, have students brainstorm for ~5 minutes:</p> <ul style="list-style-type: none">• what niche role does your animal play in the local ecosystem, and• what variations/adaptations could/do these animals have which helps them overcome the local environmental threats (refer to class list). <p><i>(E.g., A coyote plays an important role in the local ecosystem as an apex (top of the food chain) predator, keeping other animal populations in check, such as rabbits and birds. They are also competition for other apex (top of the food chain) predators such as bobcats. Coyotes need to blend into their environment to hunt prey, the beige colouration of their coat is a variation that helps them do that. As</i></p>	<ul style="list-style-type: none">• Observation sheet or nature journal• Writing utensil



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well, urban areas are less busy at night and coyotes can adjust their hunting patterns to hunt when there are less cars and people around. If they hunt at night, having good night vision is another variation that will help them survive in an urban ecosystem.)

After the short brainstorm, go around and have each group share with the class.

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Extension

1. Have students pick an animal urban wildlife species. Have them research on the [City of Calgary's Climate Program page](#) for what Calgary's climate is expected to look like 30+ years. (*E.g., more frequent flooding, increased average temperatures and more extreme hot and cold days, more frequent and severe hail storms, etc.*) Then, have them draw an evolved version of their selected wildlife species (what they would look like in 30+ years) on a blank sheet of paper with point form notes on the sides to highlight the physical and behavioural variations. These changes/variations, through generations, have helped it to overcome these challenges. Variations can be different or similar to today. Have students get as creative as they would like.

However, after students have finished, highlight that species variation is genetic and depending on the rate of reproduction in that species (bears reproduce slower than mice), many of these variations will not be possible in the time frame provided. As a result, some of their species' populations could decrease or the species itself would be displaced from urban centres. Have students in groups brainstorm or research ([on the City of Calgary's Climate Program page](#)) how the city can help protect the vulnerable urban wildlife populations.



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This extension relates to the following curriculum links:

- Identify impacts of human action on species survival and variation within species, and analyse related issues for personal and public decision-making.
 - Describe ongoing changes in biological diversity through extinction and extirpation of native species, and investigate the role of environmental factors in causing these changes.
- Assess, critically, the interrelationship between political decisions and economic systems by exploring and reflecting upon the following questions and issues:
 - Explore how government decisions on environmental issues impact quality of life.
 - Engage in current affairs, issues and concerns of a local nature